



Predicting User Satisfaction and Performance Impact of AI-Generated Visuals in Instruction with a Hybrid SEM-ANN Approach

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Why Visuals?



“A picture is worth
a thousand words.”

Human perception
and colour and
shape

Visuals enhance
user experience
and
comprehension

Images are
remembered
better than text

Today's Text intensive syllabus

Textbooks (as opposed to picture books, so to speak)



AI contribution



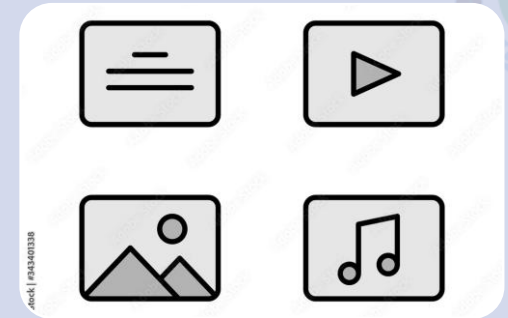
Efficiency



User-
friendly way
to produce
visual
materials

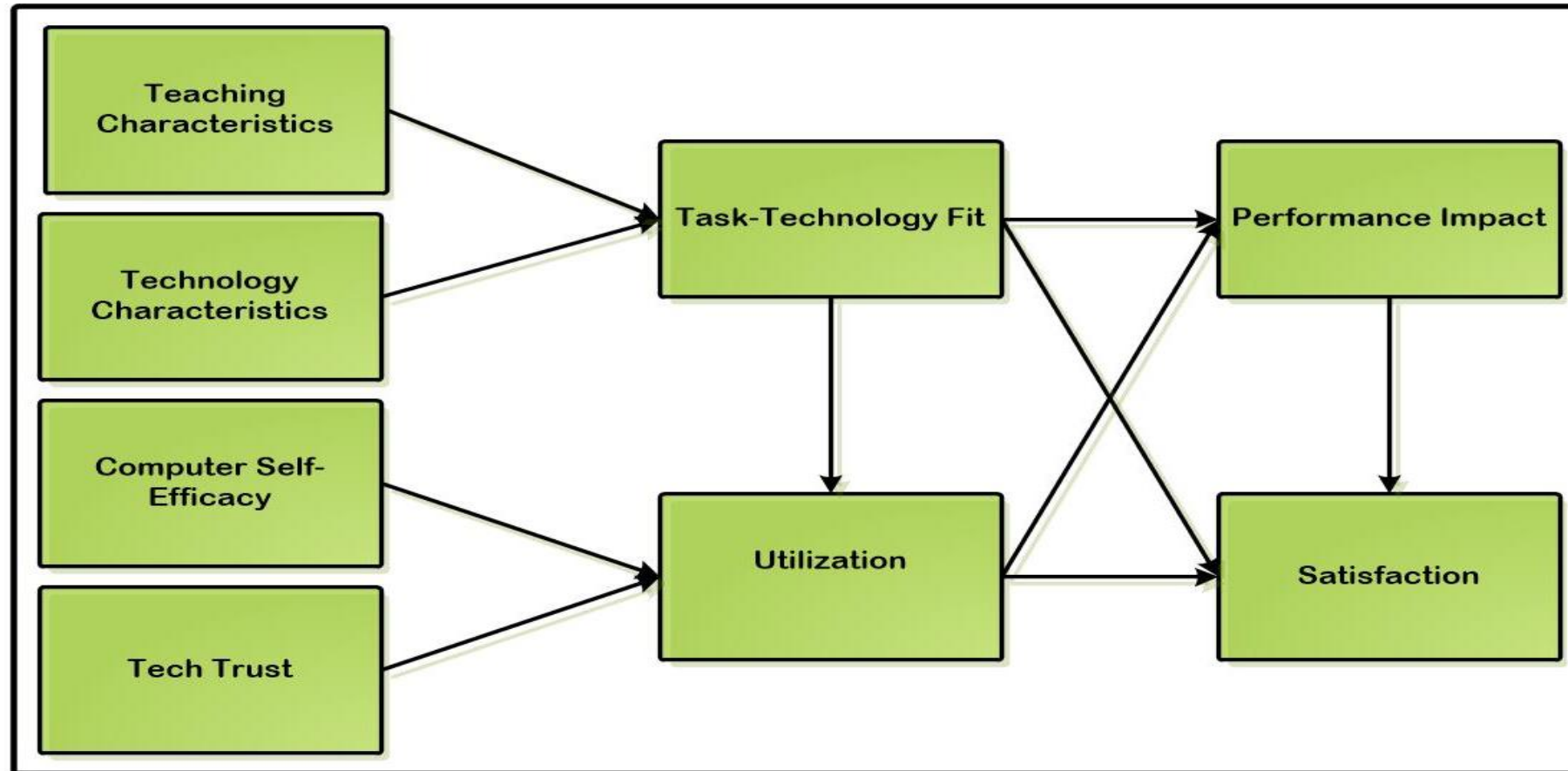


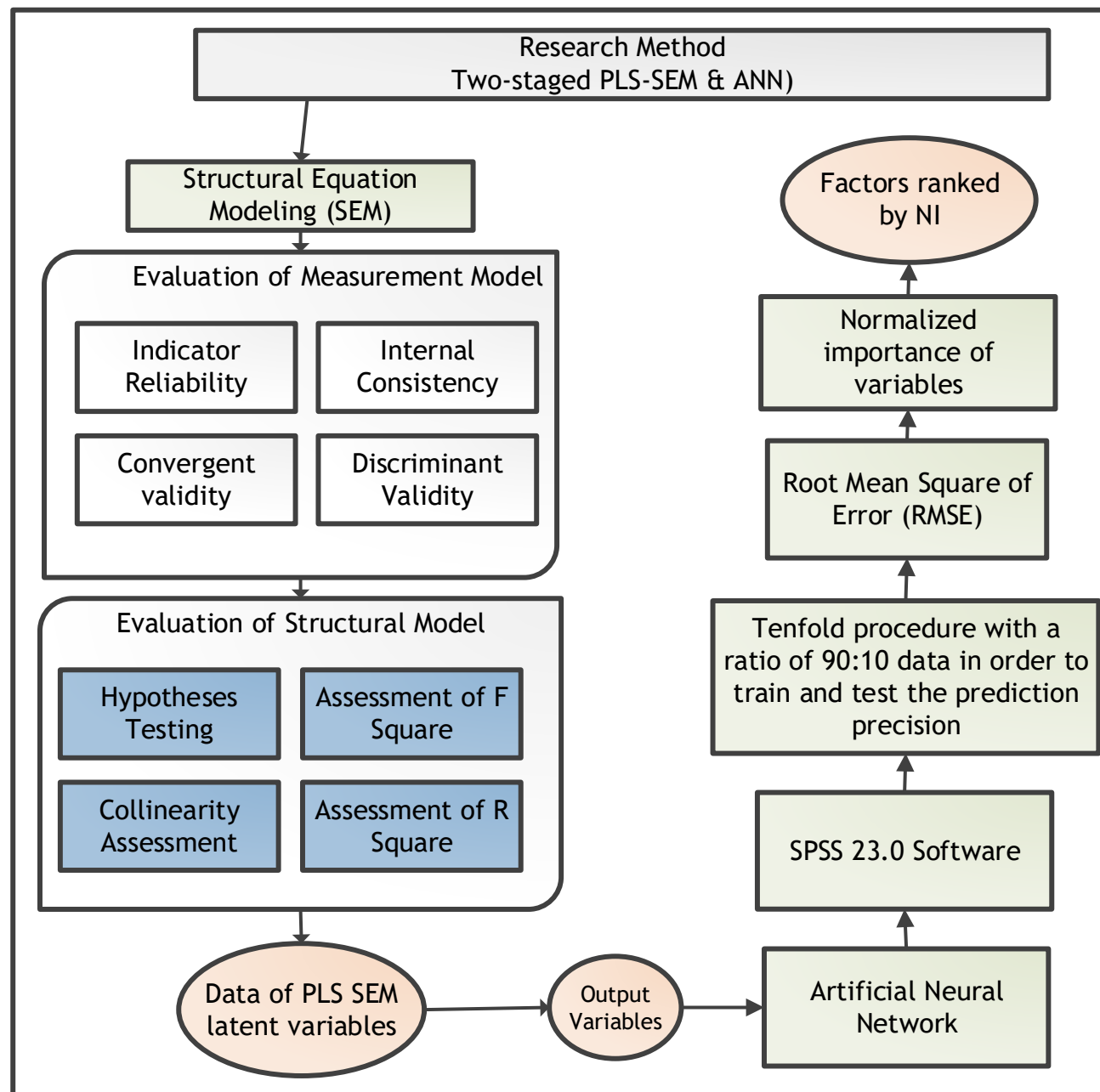
Persona
lined
Learning



Various
types of
contents

The Proposed Model





Hypotheses Testing



	VIF	β	T statistics	P values
CSE \rightarrow UT	1.486	0.253	4.198	0.000
IMPT \rightarrow SAT	1.579	0.124	1.751	0.040
TT \rightarrow UT	2.035	0.343	4.479	0.000
TTF \rightarrow IMPT	1.519	0.340	4.040	0.000
TTF \rightarrow SAT	1.701	0.480	6.800	0.000
TTF \rightarrow UT	2.301	0.200	2.648	0.004
Task \rightarrow TTF	1.623	0.232	3.330	0.000
Tech \rightarrow TTF	1.623	0.430	6.383	0.000
UT \rightarrow IMPT	1.519	0.340	4.525	0.000
UT \rightarrow SAT	1.702	0.198	3.219	0.001

Sensitivity Analysis



Variables	Average importance	Normalized Importance (%)	Ranking
TT	1	100.00	1
Tech	1	99.77	2
UT	1	99.64	3
TTF	0.95	95.18	4
UT	0.92	91.72	5
CSE	0.73	73.44	6
Task	0.69	68.52	7
TTF	0.62	61.95	8
TTF	0.57	56.72	9
IMPT	0.4	39.90	10

Conclusion



- AI as a reality that can't be ignored
- The role of policy makers
- The role of educators educational institutions

This work coincides with recent EAC AI Alliance during the East African Community Conference



Figure 2. Figure 1. H.E. President Hassan Sheikh Mohamud, President of Somalia, officially inaugurating the EAC AI Alliance during the East African Community Conference (EACON 2025). Adapted with permission from SIMAD University, the organizer of the conference



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4	UGHE – University of Global Health Equity 📍 Rwanda	74.9	75.8	36.8- 42.7	97.4	92.5	79.2	158
5	University of Ghana 📍 Ghana	74.3	61.3	75.2	79.6	79.7	78.8	65,730
6	University of Rwanda 📍 Rwanda	73.3	75.4	61.5	78.0	89.5	72.1	31,506
✓ 7	SIMAD University 📍 Somalia	71.3	79.1	68.8	85.2	92.8	34.8- 42.6	3,844

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